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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/776,633 | 02/12/2004 | Seiji Yamashita | Q79763 | 1767 |

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

| EXAMINER | |
|---|---|
| WON, BUMSUK | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2879 | |

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) |
|---|---|---|
| | 10/776,633 | YAMASHITA, SEIJI |
| | Examiner | Art Unit |
| | Bumsuk Won | 2879 |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *12 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 February 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/12/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Priority*

1 Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 2/14/2003. It is noted, however, that applicant has not filed a certified copy of the 2003-37476 application as required by 35 U.S.C. 119(b).

### *Drawings*

2 The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the stacking faults and non-luminous shell must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the

several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

3 The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Electroluminescence device having phosphor particles which give donor-acceptor type luminescent.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4 Claims 1 and 3-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Shiiki (US 6,077,458).

Regarding claim 1, Shiiki discloses an electroluminescence device (note column 1, lines 7-8), comprising phosphor particles (note figure 4, item 41), which phosphor particles give donor-acceptor type luminescence (column 4, lines 13-18), and have an average equivalent sphere diameter of 1.0 μm or more and 12.0 μm or less (note column 1, lines 47-48) and coefficient of variation of equivalent sphere diameters of 3% or more and 30% or less (note column 1, lines 47-48, "10-13 μm", 10-13 μm can be rewritten as 11.5 μm +/- 1.5 μm or 11.5 μm +/- 13%, which is within 3% or more and 30% or less).

Regarding claim 3, Shiiki discloses each of the phosphor particles is covered with a non-luminous shell (note column 3, lines 26-36, and figure 4, item 42) having a thickness of 0.01 μm or more (note column 3, lines 45-47).

Regarding claim 4, Shiiki discloses the phosphor layer (note figure 9, items 72 and 91) comprising the phosphor particles (note figure 9, shown but not numbered), and the phosphor-particle layer (note figure 9, item 72) has a thickness of 2.0 μm or more and 25 μm or less (note column 4, lines 3-4).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5 Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiiki (US 6,077,458) in view of Zovko (US 2004/0043191).

Regarding claims 5-6, Shiiki discloses all of the claimed limitations except for a pair of electrode wherein at least one of electrodes is a transparent electrode, and a dielectric layer; and the dielectric layer and the phosphor layer are sandwiched between the electrodes.

Zovko discloses an electroluminescence device which has a pair of electrodes (note figure 1, items 13 and 18) wherein at least one of electrodes is a transparent electrode (note paragraph 0021, lines 4-5, and figure 1, item 13), a dielectric layer (note figure 1, item 16), and a phosphor layer comprising the phosphor particles (note figure 1, item 15); and the dielectric layer (note figure 1, item 16) and the phosphor layer

(note figure 1, item 15) are sandwiched between the electrodes (note figure 1, items 13 and 18), for the purpose of making the electroluminescence display functional.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a pair of electrode wherein at least one of electrodes is a transparent electrode; and the dielectric layer and the phosphor layer are sandwiched between the electrodes disclosed by Zovko in the electroluminescence display disclosed by Shiiki, for the purpose of making the electroluminescence display functional.

6 Claims 2 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiiki (US 6,077,458) in view of Kajiwara (US 6,819,041).

Regarding claims 2 and 7-9, Shiiki discloses all of the claimed limitations except for at least 30% or more in number of the phosphor particles have 10 or more stacking faults per particle.

Kajiwara discloses at least 30% or more in number of the phosphor particles have 10 or more stacking faults per particle.

Kajiwara discloses stacking faults (note column 6, lines 63-64) density is 1 X $10^7$ defects/$cm^2$ or less. The phosphor particle size by area disclosed by Shiiki is between 7.85 X $10^{-7}$ $cm^2$ and 13.3 X $10^{-7}$ $cm^2$ (calculated by diameter square times $\pi$

divided by 4). Therefore, the range of number of stacking faults per particle is between 7.85 and 13.3.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have stacking fault density lower than 1 X $10^7$ defects/$cm^2$ disclosed by Kajiwara in the electroluminescence device disclosed by Shiiki, for the purpose of enhancing the brightness of the device.

7 Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiiki (US 6,077,458) in view of Kajiwara (US 6,819,041), in further view of Zovko (US 2004/0043191).

Regarding claim 10-11, Shiiki in view of Kajiwara discloses all of the claimed limitations except for a pair of electrode wherein at least one of electrodes is a transparent electrode, and a dielectric layer; and the dielectric layer and the phosphor layer are sandwiched between the electrodes.

Zovko discloses an electroluminescence device which has a pair of electrodes (note figure 1, items 13 and 18) wherein at least one of electrodes is a transparent electrode (note paragraph 0021, lines 4-5, and figure 1, item 13), a dielectric layer (note figure 1, item 16), and a phosphor layer comprising the phosphor particles (note figure 1, item 15); and the dielectric layer (note figure 1, item 16) and the phosphor layer (note figure 1, item 15) are sandwiched between the electrodes

(note figure 1, items 13 and 18), for the purpose of making the electroluminescence display functional.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a pair of electrode wherein at least one of electrodes is a transparent electrode; and the dielectric layer and the phosphor layer are sandwiched between the electrodes disclosed by Zovko in the electroluminescence display disclosed by Shiiki in view of Kajiwara, for the purpose of making the electroluminescence display functional.

***Contact information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bumsuk Won whose telephone number is 571-272-2713. The examiner can normally be reached on Monday through Friday, 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Bumsuk Won
Patent Examiner

JOSEPH WILLIAMS
PRIMARY EXAMINER